

Let's Meet Liviu Babi, YO4FNG

Article written by Nini Vasilescu, YO3CCC, and originally published on Radioamator.ro on July 8, 2012.

Among the radio amateurs I knew to be passionate homebrewers and enthusiastic operators on the higher-frequency bands was Liviu Babi.

That's why I wanted to learn more about his achievements and share his story with other enthusiasts of our hobby.

YO3CCC: When and where were you born?

YO4FNG: September 6, 1961, in Constanța, Romania.

YO3CCC: How did you first become interested in radio?

YO4FNG: To talk about my interest in radio, we have to go quite a long way back and start with electronics. I inherited this passion from my father. Little did I know that it would become my greatest lifelong passion — *forever*. It's a long story, but to make it short, when I turned six, my father gave me a soldering gun for my birthday — the famous soldering gun manufactured by Radio Progres. He chose that gift partly because he was himself an enthusiastic radio and television repairman. He had graduated from the Faculty of Power Engineering in Bucharest and, at the institution where he worked — whose name I would rather not mention, since almost everything associated with it seems to be disparaged nowadays — he was also responsible for certain aspects of radio communications. And like any parent who sees his son following in his footsteps, he was bursting with pride.

YO3CCC: What came next?

YO4FNG: Later, when I started primary school, my father enrolled me in the Electronics Club at the Pioneers' House, as it was called in those days. I was fascinated by that world, and I can say now that it was there, at that time, that the foundations were laid for everything that would follow in my life. I attended that club for many years and built countless electronic projects, first under supervision and later independently at home. Most of them were audio-related projects, particularly amplifiers, lighting effects, and radio-controlled models. Thanks to my father, I had plenty of access to electronic components and all kinds of technical documentation. During high school, one of my teachers was Mr. Stejărel Granea, a passionate audio amplifier designer and builder who was also a member of the editorial team of *Tehnum* magazine. Under his guidance, I designed and built amplifiers delivering the "enormous" output power of 20–25 watts, which I used at school parties and celebrations.

YO3CCC: But how did you eventually discover radio-frequency technology?

YO4FNG: At that time, I subscribed to *Tehnum* magazine, but I usually skipped anything related to radio. That changed one day when I came across an article featuring a **100-watt SSB amplifier**. One hundred watts was an enormous amount of power for a homebrew project back then, and it attracted me like a magnet. At the time, achieving high audio output power with transistors was difficult. Vacuum tubes were the devices capable of delivering substantial power. I had already built many vacuum-tube audio amplifiers, both single-ended (SE) and push-pull designs. This particular 100-watt SSB amplifier also used vacuum tubes, but I couldn't make sense of the circuit. I didn't understand why the schematic contained so many coils and variable capacitors, or, more importantly, what purpose they served, even though I felt I should have known. I can't remember exactly how old I was at the time, but I do remember that my father tried to explain it to me without managing to make everything completely clear. Later, as a university student, I remember turning to Mr. Victor Lupu and Mr. Emil Creangă, two of my professors at the Faculty of Electronics, for help. They are professors for whom I still have the deepest respect and admiration. I bombarded them with all kinds of questions. They patiently tried to explain things, while I struggled to understand. In fact, vacuum-tube and transistor RF amplifiers had been covered in our university courses, but apparently the information had gone in one ear and out the other — or perhaps I simply hadn't attended those particular lectures!



YO3CCC: How was the problem eventually resolved?

YO4FNG: The fact is that I must have driven them crazy with all my questions, because eventually someone told me, "We're not training radio amateurs here!" So they directed me to an amateur radio club. I will never forget the countless nights spent surrounded by components and circuit diagrams alongside Professor Victor Lupu, a man more passionate about electronics than anything else in the world. I remember our successes and, especially, our failures, the scientific papers and research projects in which I actively participated throughout my university years. Just a few days ago, I happened to learn from a former classmate, with great sadness, that Professor Lupu had passed away. I will always remember him with profound gratitude.

YO3CCC: When did you first visit an amateur radio club?

YO4FNG: That's how I eventually arrived at the Constanța Radio Club, where I met Mr. Radu Bratu, who was the club manager at the time, along with many other radio amateurs from Constanța. The huge antenna mounted on a tower immediately caught my attention. It looked nothing like anything I had studied at university. It was an enormous contraption, almost the size of a helicopter! I wondered whether everyone had to have something like that at home to become a radio amateur. Of course, we all know the answer to that question now. It would take several novels to describe my journey from university to the Radio Club. Many years have passed, and I can no longer remember the exact dates, but I do recall that, under Radu Bratu's guidance, I started building the famous **A412 transceiver**. I even had several personal discussions with Lix and his team when they visited our Radio Club.

YO3CCC: When did you obtain your amateur radio licence?

YO4FNG: An attempt was made to obtain an SWL licence for me, and that's where the first difficulties in my amateur radio journey began. My father was not at all pleased with my growing interest in radio communications, and he was particularly unhappy about the prospect of having a transmitter in the house. We had many arguments about it. I couldn't understand how my hobby could possibly cause him any harm, but it seems that, in the end, I won him over. Of course, my application for a licence was repeatedly rejected by the competent authorities. One day, my father and Mr. Bratu met. I don't know whom they spoke to or what strings they pulled, but on **November 1, 1988**, I finally received my SWL authorization, with the callsign **YO4-2842/CT**.

YO3CCC: I assume you weren't satisfied with just that.

YO4FNG: Naturally, the next step was to take the Class III amateur radio examination, after which I received the callsign **YO4FNG**.

YO3CCC: Have you ever considered changing to a callsign with a two-letter suffix?

YO4FNG: This is the only callsign I have ever held, and it is the only one I will ever have. I'm proud of it. I've spent a lifetime making that callsign known, and I will never change it.

YO3CCC: What did you do after graduating from university?

YO4FNG: After graduation, I was assigned to the Cernavodă Nuclear Power Plant, where I began attending the local Radio Club, which operated under the callsign **YO4KVD**. I moved there with my family, and I was still living in Cernavodă when the Romanian Revolution took place. At the time, I was working shifts on duty at the club station. I met many radio amateurs there and formed friendships that would last a lifetime: Zoli, YO4WZ, Daniel, YO4FHU, Doru, YO4GMD, Vasile, YO9DAX, Zică, YO9FHB, and many others. At work, Mr. Filip, YO4NQ — "the big boss" at the time — equipped our electronics laboratory with practically everything we needed for our amateur radio activities. Since almost everyone on our team was a radio amateur, we built an exceptionally well-aligned and fine-tuned A412 transceiver. It was also there, in the machine shop, that I made my first Morse key.

YO3CCC: Do you still have it?

YO4FNG: I still have that Morse key today, and its sentimental value is beyond measure.

It was also in Cernavodă that I started building the *Unirea* VHF/UHF transceiver, a project I unfortunately abandoned and never completed. In Cernavodă, I also met Felix Ovezea, YO4WP, who was responsible for maintaining the regional mobile radiotelephone network. Together, we built several computers called "Cobra," if I remember the name correctly.

YO3CCC: What did you use them for?

YO4FNG: Unfortunately, we only used them for games! Felix and I became very close friends, partly thanks to the many long, intense nights we spent debating electronics at his home in Medgidia. We also made numerous portable operating trips to the Topolog repeater site, some of which were quite adventurous. One involved a car accident that, fortunately, ended without serious consequences. I later wrote about that experience in *Radiocomunicații și Radioamatorism* magazine. We also participated in many national VHF/UHF contests alongside radio amateurs from Cernavodă and Fetești. It was from Topolog that I made my first repeater QSO. I can no longer remember exactly which repeater it was, but I believe it was R0, located on Coștila, which was something of a pioneering achievement in YO at the time.

YO3CCC: What was your first homebrew project specifically related to amateur radio?

YO4FNG: My first amateur radio project was a **3.5 MHz direct-conversion receiver**, built from a circuit published in *Tehnum* magazine. For an antenna, I used a 25-meter long-wire antenna stretched from my third-floor balcony into some nearby trees. I was absolutely fascinated as I listened to the QTC bulletins. I used to invite friends and neighbors from the apartment building to come and see my achievement and marvel at what I had built.

YO3CCC: Which attracted you more in the beginning, HF or VHF/UHF?

YO4FNG: In my early years, I became more involved in VHF/UHF, partly through my friendship with **YO4AX (formerly YO4APE)**, a very experienced VHF/UHF operator. Later, Sandu Marinescu, YO4ASM, invited me to his home. There, for the first time, I saw a **144 MHz power amplifier using a GU-29 tube**, along with Yagi antennas mounted on an azimuth/elevation (Az/El) rotator system. He used that setup for amateur satellite communications, something that seemed almost unimaginable to me at the time.

YO3CCC: What equipment did you start out with on VHF/UHF?

YO4FNG: My first VHF project was a crystal-controlled FM transmitter for 144 MHz, delivering approximately 0.5 to 1 watt, if I remember correctly, based on a design by YO3AVE. I still have it today. I then built a separate receiver with a VFO. That's more or less how we operated in contests back then: you transmitted on a fixed frequency and tuned around with your receiver to find other stations. Later, I built a transceiver with two separate VFOs, one for TX and one for RX, also based on a YO3AVE design. I had to align the two frequencies manually so that my transmitted signal would be on the same frequency as the station I was receiving. I still have that transceiver, delivering the "enormous" output power of **8 watts**, and it remains operational today. Those were the days of honest contesting. No telephones, no Internet, no instant messaging!

YO3CCC: What were your first VHF/UHF DX contacts?

YO4FNG: My first portable VHF DX contacts were on 144 MHz, with stations in the former German Democratic Republic (East Germany) and Czechoslovakia. I can't begin to describe how proud I was! I don't know where I've put those QSL cards, but I hope I'll find them someday, if only so I can admire them with the reverence they

deserve. To align those transmitters, I built a frequency counter using a whole army of TTL ICs, a huge 100 kHz quartz crystal almost the size of a jar, and a Nixie-tube display. That frequency counter is still working today and, much to my disappointment, it still doesn't have an enclosure! Please excuse the dust on it. It hadn't been powered up for twenty years, but when I switched it on, it started working perfectly. It can calculate the sum of the IF and VFO frequencies, so it can still be used without any problems as a digital frequency display for a transceiver.

YO3CCC: Did you ever own an LB881 computer?

YO4FNG: My first computer intended for amateur radio applications was the famous **LB881**. I obtained a partially assembled unit from Laurian, YO4QZ, in exchange for a CB transceiver. I completed the construction and got it running using a *Sport* television set as a monitor, adding a keyboard, front- and rear-panel interfaces, and a power supply. It worked for quite a long time. Unfortunately, I never used it for RTTY, although that had been my original intention when I acquired it. Instead, it was heavily used for playing **TETRIX**, a game that caused countless arguments between my brother and me! I even upgraded it with a second motherboard equipped with the OS8 operating system. Gil Leonte, YO4BXU, helped me program the EPROMs. I have no idea what eventually happened to that computer. I keep trying to remember, but I simply cannot recall how its story ended.

YO3CCC: Could you tell us more about your friendship with Nea Nicu, YO4AX?

YO4FNG: Later, I saw a remarkable transceiver at Nea Nicu's place. He was YO4AX, although at the time he still held the callsign YO4APE. It was a beautifully built transceiver with a VFO, neatly housed in a proper enclosure — something I struggled with throughout my homebrewing life! It delivered 20 watts FM on the 2-meter band.

I did everything I could to acquire that transceiver, and I went on to use it in numerous VHF/UHF contests. I was extremely proud of it. Nea Nicu also helped me with professional test equipment and his outstanding technical expertise. Together, we tuned and aligned my first 144 MHz antenna: a six-element Yagi mounted on a three-meter boom made from 20 × 20 mm square aluminum tubing, with gamma matching. I then tried to build an omnidirectional antenna for 144 MHz so I could join the local QSOs and the nightly on-air ragchewing. After several attempts, some more successful than others, Nea Nicu finally spared me the trouble. From his "magic teapot," he produced a wonderful gift: a commercially manufactured **SA 270MN dual-band 144/432 MHz omnidirectional antenna**. Even today, after all these years, that antenna is still installed on the roof of my apartment building and works perfectly. In fact, Nea Nicu has been my mentor and close friend throughout my entire amateur radio career. He was always there with advice, test equipment, and assistance whenever I needed to tune, align, or troubleshoot something. Whenever I was missing a particular component, he would perform a little *hocus-pocus*, reach into his "magic teapot," and somehow produce exactly the part I needed. And believe me, there were plenty of those occasions! He was a walking encyclopedia of VHF/UHF knowledge, always able to come up with the right idea or advice to solve a problem. A simple thank-you now seems far too little for everything he has done for me. I hope I haven't disappointed him too much, or too often, either. Hi!

YO3CCC: Were there other radio amateurs who helped you or with whom you collaborated?

YO4FNG: Of course there were!

Gică Rădulescu, YO4AUP, helped me enormously — and still puts up with me today! With great patience and enthusiasm, he corrected my mistakes and some of my more questionable ideas, including plenty of calculations. Then there was Vali, YO4GAB, who spent years and countless nights working with me to perfect the A412 transceiver. We improved it so much that, eventually, it stopped working altogether! It would only operate with all the circuit boards spread out across the table, where we were constantly modifying the circuitry, adjusting coils, and burning out transistors. Vali made plenty of contacts as an unlicensed operator, using various callsigns and the A412. He filled entire notebooks with QSO logs. We first upgraded that A412 with a GU-50 tube, then two GU-50s, and finally three GU-50s, driven by a transistor in the cathode circuit, following Zoli YO4WZ's advice. Eventually, we gave it another substantial boost by adding an **RE1000 tube**. Since we didn't have a power supply capable of providing enough anode voltage to drive it properly, we lined up five or six transformers along the windowsill of Vali's apartment and connected their secondary windings in series. That transceiver and its power amplifier, spread across two tables and a triple-glazed windowsill, worked like a charm! We secured the enormous variable capacitors to the table with nails. We were running full power and working stations one after another. The hardest part of that power amplifier project was convincing Vali's wife to let us carry on. She complained that she was living inside an electrical trap and that the bathroom was practically the only safe place left in the apartment. It was also about the only place where she could eat a meal like a normal person, because almost anything you touched elsewhere in the house could give you a serious electric shock! Even the Radio Traffic Control inspectors were amazed when they came to investigate. Vali lived very close to a military communications unit in the Macul Roșu area of Constanța, and I suspect our "little project" had been causing them some interference. We barely

managed to squeeze the power amplifier into a wardrobe after hurriedly dismantling it in a matter of seconds! The list of people I owe thanks to is much longer. Please don't be upset if I haven't mentioned everyone here. I would practically have to copy half the **YO Callbook** into this interview! Many of those who helped and guided me are no longer with us, but they will always remain in my heart.

YO3CCC: What happened after 1989?

YO4FNG: After the Romanian Revolution, turbulent years followed. Some radio clubs disappeared, others were established, and our family moved from Cernavodă to Constanța. We changed addresses several times, living in rented accommodation. Without a home of our own, without stable employment, and with a young child to support, I had to go to sea as an electrical officer to earn money and help us build a future. Consequently, I took a break from amateur radio for several years. However, I kept my amateur radio licence and callsign, and always made sure the required fees were paid on time.

YO3CCC: When did you return to amateur radio?

YO4FNG: After several years away from the hobby, it was my wife who rekindled my passion for amateur radio. A few years ago, she gave me a **Yaesu FT-23 handheld transceiver** for my birthday, purchased from my friend Vali. That little radio brought me back into the world I had left behind so many years earlier. My first QSO was with Mircea, YO4SI, who answered my call while I was operating portable in town. After that, everything took off! I reconnected with all my old friends and became seriously involved in amateur radio once again.

YO3CCC: What happened to the Radio Club near the Holiday Village?

YO4FNG: The old Constanța County Radio Club headquarters was demolished, and a large shopping mall now stands on the site. I watched with sadness as the two enormous metal antenna towers, once the pride of the Constanța Radio Club, were brought down. The club's callsign simply could not be allowed to disappear into oblivion. That's how a private amateur radio club came into being. I was one of the founding members of the **Radu Bratu Radio Club**, which took over the callsign **YO4KCA**. I believe my activity at the club continued successfully. I participated in many VHF/UHF contests, often operating as a team with Claudiu, YO4FYQ, among others. We achieved numerous top rankings and championship titles, gained valuable experience, and developed a well-equipped and carefully optimized portable contest station.

YO3CCC: What did you do after returning from your seagoing career?

YO4FNG: When my career at sea came to an end, a new chapter of my life began. I started working as a service engineer at UTI Constanța, later UTI Brașov, Constanța branch. I suddenly found myself dealing with state-of-the-art electronics. I spent countless nights working and studying, trying to understand how the various assemblies were installed, how they functioned, and how they interacted. The design department would simply hand me the complete project documentation, boxes of unopened equipment and modules, the customer's requirements, and the necessary tools. Then they would wish me good luck and a pleasant day! At UTI, I worked alongside several colleagues, including Georgică, YO4CSG, with whom I developed a particularly close friendship. I took an active part in many ambitious, large-scale projects involving advanced electronic systems. These included electronic access-control systems, pneumatic cash transport systems — something not everyone may be familiar with: in supermarkets, money can be transported through complex underground or overhead tube networks in special capsules propelled by compressed air — CCTV surveillance, intrusion detection, fire detection, backup and data recovery systems, cash registers, and card readers. We worked on installations for shopping centers and other facilities in Constanța and elsewhere, including Metro, Selgros, Tomis, the Tulcea Art Museum, pharmacies and pharmaceutical warehouses throughout much of eastern Romania, and the Babadag ammunition depot. Other projects involved professional sound reinforcement, public-address systems, distress and emergency communication systems, and backup installations at the Oltenița courthouse and various hotels in the Danube Delta and along the Black Sea coast. Building an entire automation system for a shopping mall from scratch, commissioning it, and bringing every subsystem within its required operating parameters is certainly no child's play. However, my most enjoyable assignment at UTI was working alongside Georgică, YO4CSG, as part of a two-man team responsible for the banking security and data transmission systems of a bank whose name I won't mention. The bank had branches across a large region extending from Oltenița to Tecuci. Our car's trunk was never without his famous two-element **HB9CV antenna**, a veteran telescopic mast several meters tall, and our handheld transceivers. We often stopped along the way to have a chat with other radio amateurs, either through repeaters or on simplex. Those are years I will always remember with great pleasure.

YO3CCC: What other radio amateurs did you meet?

YO4FNG: After leaving UTI, I was appointed Technical Director at BTT Costinești. Because my work required daily trips to Mangalia, I got to know the radio amateurs there as well: Mihăiță, YO4GJS, Lucică, YO4CIS, and especially George, YO4CPN, with whom I developed a close and lasting friendship. We made dozens of visits to each other's homes, had countless discussions, and exchanged opinions, technical documentation, and information about the many projects we were building. George is a passionate and highly experienced homebrewer, and the proud owner of an attic absolutely packed with electronic components! I also became very close friends with his son, Ovidiu, YO4GMS, who would eventually guide me towards a new stage in my amateur radio activities.

YO3CCC: I hope you didn't limit yourself to the handheld transceiver your wife bought you!

YO4FNG: My handheld delivered only 5 watts, so my first idea was to build a power amplifier to increase its transmit power. My first amplifier used a **BLY92 transistor**, operating in Class C, and delivered about 25 watts. Dan Popana, YO4CPQ, gave me that transistor and helped me tune and align the amplifier using his dummy load and SWR meter. I continued with another Class C amplifier, this time using a BLY94 transistor supplied by George, YO4CPN, which increased the output power to 50 watts. Next came a design using a 2T930B transistor, with which I obtained around 60–70 watts. I also attempted to build a push-pull amplifier using two 2T930B transistors, but I didn't have suitable capacitors for the output circuit. During initial testing and adjustment, one of the output variable capacitors short-circuited. The excessive heat melted the solder holding the transistors to the circuit board. The solder ran, and the entire assembly literally exploded! Frustrated, and especially because I lacked the components needed to continue, I abandoned the idea of building transistorized power amplifiers. Following discussions with Claudiu, YO4FYQ, I decided instead to tackle the construction of a **144 MHz vacuum-tube power amplifier**.

YO3CCC: You can certainly work DX on 2 meters using FM, but most long-distance contacts are made on SSB and CW.

YO4FNG: I also rediscovered **sporadic-E (Es) propagation**. At that point, I was operating exclusively on FM, using Class C amplifiers and a vertically polarized antenna. I managed to make several DX contacts, including one with an OH station in Finland. However, the real DX activity was on SSB and CW, using horizontally polarized antennas. My first HF transceiver was a **Yaesu FT-77**, purchased from Germany through eBay with the help of Ovidiu, YO4GMS. The transceiver covered only the HF bands, but my real passion was still VHF/UHF. Fortunately, I managed to find a **Yaesu FTV-707 144 MHz transverter** through Mihai, YO2MBD. This model had been specifically designed to operate with the Yaesu FT-77. The transverter was intended to work only with that transceiver, taking an RF drive signal of just 1 mW from the FT-77 and converting it for operation on 144 MHz. As far as I remember, some of the RX/TX switching and control functions were handled by the transceiver, while others were handled by the transverter. Someone had previously attempted to modify it for standalone operation, but without success. I restored it to working condition and made several improvements. I replaced the original dual-gate MOSFET mixer with a **Schottky diode ring mixer**. My thanks go to Zoli, YO4WZ, for the four diodes, and to Nicu, YO4AX, for the figure-eight ferrite cores. I also added a **GaAs low-noise preamplifier using a CF300 transistor**, kindly supplied by Harry, PA3COB. With an output power of 10 watts, I was finally equipped to make SSB and CW contacts on 144 MHz. However, I needed more power, which meant building a **Class AB linear amplifier**. My first vacuum-tube VHF power amplifier used a **QQE 06/40 tube**, based on a circuit published in one of our Romanian amateur radio magazines. I built it together with Claudiu, YO4FYQ. That amplifier still works today and delivers an output power of **80 watts**.



YO3CCC: Since you were so interested in 2-meter DX, didn't you also try meteor scatter?

YO4FNG: Around that time, I also discovered digital modes for meteor scatter communications. WSJT opened the door to long-distance contacts for me. Using my Yaesu FT-77 and Yaesu FTV-707 transverter, a horizontally polarized six-element Yagi, the 80-watt QQE 06/40 tube amplifier, and some homebrew coaxial relays, I made my first meteor scatter QSOs. My first completed contact was with **S51TW**. That was my baptism into the world of DX operating! I went on to work numerous countries via meteor scatter, at distances approaching 2,000 km, including PA, OH, LA, OZ, and ES. The satisfaction was enormous. Since then, I've been a regular participant in the ON4KST chat, thanks to PE1AHX, who found me on the Internet and introduced me to it. However, my antenna was fixed on the roof of a four-story apartment building. Whenever I arranged a sked with another station, I had to point the antenna manually in the required direction. That didn't stop me from being active almost continuously on 144 MHz. And my ambitions certainly didn't end with the 2-meter band.

YO3CCC: I assume you then moved further up in frequency.

YO4FNG: I bought and assembled a 432 MHz transceiver kit. It operated on fixed frequencies selected through a diode matrix. Apart from the commercially manufactured dual-band omnidirectional antenna I mentioned earlier, my first dedicated 432 MHz antenna was a four-element Yagi made from copper tubing normally used in heating installations. I built the matching loop according to the published design. I never even checked it with an SWR meter, but it worked! My first notable 432 MHz QSO was with **LZ3BD**, whose QSL card I still keep in a place of honor. Later, I acquired a 25-watt, 16-channel mobile radio for 432 MHz. During propagation openings, I used it to work stations in Ukraine, Turkey, Bulgaria, and Moldova. With this modest setup, a great deal of enthusiasm, and many sleepless nights, I fulfilled the requirements for admission to the **YO DX Club**.

YO3CCC: I hope you also ventured into EME operating.

YO4FNG: I certainly didn't stop there. I became fascinated by something even more challenging: **EME (Earth-Moon-Earth), or moonbounce communications**. There were many attempts and plenty of failures, but I wasn't discouraged. My first successful EME QSO was with **W5UN on January 24, 2004**. It was a random contact, not a prearranged sked. I simply answered his CQ using the station setup described earlier. My antenna was aimed horizontally, with no elevation adjustment, and I benefited from substantial ground gain at moonset. I don't think I need to describe how I felt when the confirming QSL card arrived! I also had the great honor of having an operator of W5UN's stature publish an article in *ARRL EME 2004* about the achievement of working stations equipped with such modest setups as mine.

YO3CCC: Did you have a well-equipped station for EME?

YO4FNG: As you can see from his QSL card, W5UN had a truly enviable station setup. I realized that if I wanted to work other EME stations, I would have to improve my own equipment. I replaced my six-element Yagi with a ten-element Yagi on a 4.5-meter boom, designed and optimized at my request by Ovidiu, YO4GMS. An unfortunate incident turned out to bring me enormous benefits, which continue to this day. Wanting to acquire an all-mode 144 MHz transceiver, I placed a bid on eBay Germany and won an auction for an ICOM IC-211E. I sent the seller €400 and received absolutely nothing. During a conversation on the ON4KST chat, the subject of eBay came up, and I mentioned that I had been cheated. A complete stranger, Frank, DF5NK, offered to help me without expecting anything in return. I don't know exactly what he did or how he managed it, but he succeeded in recovering my money from the seller who had defrauded me. From that moment on, Frank, DF5NK, and I developed a very special friendship that continues to this day. He offered to handle any future equipment purchases I wanted to make in Germany, to make sure everything went safely. And that's exactly how things have worked ever since. I barely have to mention something I would like to buy before he arranges the purchase for me! With modern payment systems, transferring money between Romania and Germany in either direction is no longer a problem. With Frank's help, I acquired a Yaesu FT-221E and later an ICOM IC-706MKII G. Unfortunately, the latter was a disappointment. I built a computer-control interface for it and tried every possible way to work additional EME stations, but without success. Its only useful functions, as far as I was concerned, were listening to FM broadcast radio on 88–108 MHz and heating the room! I got rid of it as quickly as possible.

YO3CCC: What did you buy to replace it?

YO4FNG: On the recommendation of Roel, PA1LA, I acquired a **Yaesu FT-225RD**. It was an exceptional receiver, an absolute dream on RX. Using a single antenna without elevation control and only 80 watts, I managed to work several more EME stations, although they were all in the "big gun" category: KB8RQ, RN6BN, HB8Q, EA6VQ, and others. At Ovidiu YO4GMS's suggestion, I added a second ten-element Yagi, also designed and optimized by him. I phased the two antennas together using 75-ohm coaxial cable sections and upgraded the antenna system to allow manual elevation adjustment, still without an elevation rotator. I increased my transmit power to approximately **350–400 watts** by building a power amplifier using a 6J7 tube. I also added a homebrew LNA using a dual-gate BF981 MOSFET. With this modest system, patience, and enthusiasm, I completed dozens of EME QSOs. Of course, I missed ten times as many! My station was small and limited. I had homebrew coaxial relays, significant system losses, and could only operate when the Moon was visible so I could manually point the antennas in the proper direction, and when propagation conditions were favorable. Nevertheless, I was on cloud nine! The failures didn't matter. Only the successful contacts counted. I spent nearly all my spare time on the apartment building's roof. I also made a tremendous number of meteor scatter QSOs. Somehow, I also acquired an **ICOM IC-505**, an all-mode 50 MHz transceiver delivering just 10 watts. I put together a simple dipole on the roof and made my first contacts on this completely new band. Building a 6J7 power amplifier for 50 MHz gave me a significant increase in output power and, naturally, allowed me to work many more stations.

YO3CCC: Do you hold the title of Master of Sport?

YO4FNG: With that relatively modest equipment, I fulfilled the qualification requirements for the **Master of Sport** title. My Master of Sport certificate was formally presented to me during a ceremony at the National Sports Agency (ANS). I was also proud when Vasile Ciobăniță, YO3APG, invited me to give presentations about digital meteor scatter and EME operating at various amateur radio events.

YO3CCC: Did you exchange experiences with other radio amateurs involved in these operating modes?

YO4FNG: Exchanging knowledge and experience with Doru, YO2AMU, Adrian, YO9FRJ, Cristi, YO3FFF, and Codruț, YO3DMU, was extremely valuable. I had entered another level of amateur radio, a more specialized and demanding part of our hobby.

YO3CCC: What was the next transceiver you acquired?

YO4FNG: Around that time, Claudiu, YO4FYQ, bought a Yaesu FT-847. It was an excellent multiband transceiver, and I was very impressed by its performance. I realized that if I wanted to achieve more, I needed to upgrade my own station once again. I sold all the transceivers I owned and, with the help of Gigi, YO5OVM, acquired a beautiful, brand-new **Yaesu FT-847**, which was unboxed in front of me in Constanța. The two YO4GMS-designed antennas were replaced with two nine-element **DK7ZB Yagis**, each mounted on a five-meter boom, and I built a power splitter for phasing the antennas together. I also decided to attempt EME on 432 MHz. For that purpose, I built two ten-element Yagi antennas, again designed and optimized by Ovidiu, YO4GMS. I phased them using 75-ohm coaxial cable sections and incorporated them into the station's antenna system.

YO3CCC: Did you have problems with your neighbors? I'm asking because, from everything you've told me, you seemed to spend most of your time on the roof, constantly turning antennas, replacing them, and making adjustments.

YO4FNG: Almost overnight, a rather large and strange-looking structure had appeared on the roof of our apartment building. My neighbors became curious and, eventually, rather frightened. That's when the problems started. I couldn't really use the 432 MHz system because every time I pressed the PTT, the car alarms in the parking lot would go off! I found it absolutely hilarious. My neighbors, however, were driven to distraction. TVI was another major problem. Whenever I transmitted, the television picture on the Romanian channel *Antena 1* was completely ruined. And you can imagine the arguments I had with my wife! The DX openings always seemed to occur at exactly the same time as her favorite TV show, *Din Dragoste*. Eventually, I was forbidden from transmitting from the apartment building.

YO3CCC: How did you solve the problem?

YO4FNG: With no other choice, I was forced to move the entire station setup to my cousin's property. There was an unfinished first-floor concrete platform that offered an excellent, unobstructed operating location. With Nicu YO4AX's help, I built a completely new system consisting of two horizontally stacked, horizontally polarized, phased antennas, with manual azimuth and elevation control. Thanks to Frank, DF5NK, I replaced the connectors and coaxial cables with high-quality components. Frank also supplied me with a commercially manufactured **Götting RF reflectometer**, capable of measuring up to 500 watts on 144 and 432 MHz, and a brand-new Toitsu CX-600 coaxial relay. The second coaxial relay, a 1 kW Amphenol unit, came from Nea Nicu YO4AX's famous "magic teapot." Harry, PA3COB, also supplied me with a commercially manufactured LNA.

YO3CCC: Did you encounter any more problems after moving the station to your cousin's property?

YO4FNG: The new setup opened an entirely new world of possibilities. For the first time, I was able to make EME contacts using traditional CW, something that had previously been beyond the capabilities of my station. However, new problems soon appeared. Every time I switched to transmit, the computer would freeze, and the mouse pointer would jump into a corner of the screen and remain stuck there. The only way to recover was to reboot the PC. I solved the problem by replacing the desktop computer with a laptop. We still had the same TVI problems, especially on *Antena 1*, but fortunately nobody at that location particularly cared about watching that channel! I made many EME contacts with this system. What frustrated me most was that I very rarely managed to work stations using only two antennas, and I completed contacts with single-antenna stations on just two or three occasions. I regularly missed DXpeditions operating with modest station setups. Clearly, if I wanted to achieve more, I needed a larger antenna system.

YO3CCC: What was your next step?

YO4FNG: The first step was building a new power amplifier using a **GS-35B tube**, kindly given to me by Paul, G4DCV. The adventures involved in building that amplifier have already been described in other articles, so I won't go into the details here. I also added two more nine-element DK7ZB Yagis. For the first time, I could honestly say I was satisfied with my station's performance. During the very first test call, made in traditional CW mainly to check the setup and SWR, I received an answer from **RA0FU, in the Sakhalin Islands**, north of Japan. Among the stations I subsequently worked were: Argentina — LU1CGB, Australia — VK2KU, Brazil — PY2SRB, Peru — OA4TT, Canada — VE1KG, China — BY7PP, Guernsey — MU/DH7FB, Mauritius — 3B8EME, Mexico — XE2AT, New Zealand — ZL2DX, Portugal — CT1HZE, Uzbekistan — DL9/LBH, Oman — A43DLH, Faroe Islands — OY4TN, South Africa — ZS6WB, Japan — JH0HME. I must also mention the great pleasure of working **Joe Taylor, K1JT**, the developer of WSJT, who made this remarkable software freely available to enthusiasts of digital amateur radio modes.

YO3CCC: Did you continue operating from your apartment as well?

YO4FNG: Yes. At the apartment, I also added the **1296 MHz (23 cm) band** to my operating capabilities. Thanks to Frank, DF5NK, I received a Kuhne (DB6NT) 1296 MHz transverter kit, together with a 20-watt power amplifier. With Nea Nicu YO4AX's help, I assembled and commissioned the transverter. For 1296 MHz, I use a homebrew 15-element DL6WU-design Yagi on a 1.5-meter boom.

YO3CCC: Which transceiver do you use to drive the 1296 MHz transverter?

YO4FNG: Following DB6NT-Kuhne's recommendations, I acquired a **Yaesu FT-290R**, an all-mode 144 MHz transceiver ideally suited to driving the 1296 MHz transverter.

YO3CCC: Have you made any local QSOs on 1296 MHz?

YO4FNG: One particularly memorable event was a 1296 MHz QSO in Constanța involving myself, YO4FNG, Cornel, YO4AUL, Claudiu, YO4FYQ, and Gigi, YO4ASV.

YO3CCC: After moving your main antenna array to your cousin's property, what equipment did you continue using for transmitting from your apartment?

YO4FNG: After dismantling the EME antenna system on the apartment roof, I installed a ten-element DK7ZB Yagi for 144 MHz, a sixteen-element DK7ZB Yagi for 432 MHz, and the fifteen-element Yagi for 1296 MHz, so I wouldn't lose the operating possibilities I had gained. I also have a dipole for 50 MHz which, to my surprise, also provides a reasonably acceptable match on 70 MHz. I gained access to the 70 MHz band by modifying my Yaesu FT-847 to enable transmission on that frequency range. Without any other special modifications, it delivers approximately 20 watts on 70 MHz. I was pleasantly surprised when I worked **PA4PS in the Netherlands on 70 MHz**, exchanging 59 reports in both directions. The GI-7B amplifier, which had originally served as the driver for my GS-35B amplifier, was replaced by a 250-watt "brick" amplifier. I brought that amplifier back to the apartment, where I use it for meteor scatter and sporadic-E operating.

YO3CCC: When did you experience propagation openings that allowed you to make particularly long-distance contacts?

YO4FNG: The years **2005 and 2006** brought me almost unimaginable satisfaction. I experienced some exceptional sporadic-E openings on 144 MHz, allowing contacts over unusually long distances: 2E1HKB locator JO02OB - QRB = 2.201 Km; G4JZF locator IO82XO - QRB = 2.429 Km; G4KWQ locator IO92AQ - QRB = 2.426 Km; G8IZY locator IO91VC - QRB = 2.278 Km; GW3LEW locator IO71PS - QRB = 2.596 Km; EI4DQ, locator IO51WU - QRB = 2.831 Km; EI5FK, locator IO51RT - QRB = 2.860 Km. These extraordinary openings culminated on **June 26, 2006**, when I completed a QSO with **EA8AVI in the Canary Islands (locator IL28FC)**, at a distance of **4,293 km**. At the time of this interview, that contact was still recognized by IARU Region 1 as a world distance record. I am also extremely honored that DK7ZB featured my ten-element antenna, built according to his recommendations, together with my callsign, prominently on his website.

YO3CCC: Which rare DX entities have you worked on 2 meters via meteor scatter?

YO4FNG: Some of my more remarkable 144 MHz meteor scatter QSOs include rare entities such as: Libya — 5A7A, Åland Islands — OH6ZZ/O, Corsica — TK5JJ, Cyprus — 5B8AD, Egypt — SU1KM, Georgia — 4L1FP, Kaliningrad — RU2FM, Liechtenstein — HB0/DK5TE, Luxembourg — LX/PA2CHR, San Marino — T70A, Monaco — 3A/OZ2, Dodecanese — SV5BYR, Malta — 9H1TX, Crete — SV9/G4DHF. I have also worked rare entities during sporadic-E openings, including Ceuta/Melilla — EA9IB, Kazakhstan — UN7AX.

YO3CCC: So far, you've told me about your achievements in our shared passion, amateur radio. Could you also tell me something about your family life and personal achievements?

YO4FNG: Major changes have taken place in my family life as well. Apparently deciding that one university degree wasn't enough, I completed a second degree, this time in Pharmacy, at the University of Medicine and Pharmacy in Constanța. God blessed me with a wonderful wife who has allowed me to pursue my hobby in peace. This is despite the fact that, between our two homes and a garage, both indoors and outdoors, there is barely enough room to squeeze past all the electronic projects, assemblies, boxes, and antennas. There are hazards everywhere! In my own opinion, this passion has long since gone beyond what one might consider normal. My wife has always supported me, both emotionally and financially. Of course, she has never missed an opportunity to laugh at me whenever I nearly set the house on fire, accidentally plunged the house into darkness, or blew up another vacuum tube! What's more, in 2001, my second child, a baby boy, was born.

YO3CCC: Congratulations! May he bring you much happiness!

YO4FNG: Thank you, and the same to you. I decided that having kilowatts of RF power around a baby wasn't such a good idea, so I dismantled my entire antenna system and put it into storage. However, to keep my skills sharp, Gigi Moldoveanu, YO4ASV, and I decided to build a comprehensive amateur radio station at his holiday property in Mamaia Sat.

YO3CCC: How did you divide the responsibilities, and what did you build?

YO4FNG: Gigi, YO4ASV, provided all the financial resources, while I handled construction, installation, alignment, and commissioning. We built the following systems:

50 MHz station

A five-element Ecoflex Yagi installed on a 15-meter mast, with a Yaesu G-800 rotator and a Yaesu FT-897D transceiver.

144 MHz station

A system consisting of:

- Four horizontally polarized, horizontally stacked and phased nine-element F9FT Yagis on a ten-meter mast;
- SSB Electronics LNA with VOX control and integrated 1 kW coaxial relays;
- Yaesu G-5500 Az/El rotator with computer-control interface;
- BEKO HLV-750 RF power amplifier;
- Tohtsu CX-600 and CZX-3500 coaxial relays;
- H1000 coaxial cables with separate RX and TX feedlines;
- Homebrew half-wave ($\lambda/2$) balun;
- Digital-mode control interface;
- Yaesu FT-847 transceiver.

432 MHz station

A system consisting of:

- Four horizontally polarized, horizontally stacked and phased sixteen-element F9FT Yagis on a ten-meter mast;
- SSB Electronics LNA with VOX control and integrated 1 kW coaxial relays;
- Yaesu G-5500 Az/El rotator with computer-control interface;
- H1000 coaxial cables;
- IOJXX balun;
- Digital-mode control interface;
- BEKO HLV-550 RF power amplifier;
- ICOM IC-810H transceiver.

On 432 MHz, I also use an excellent Down East Microwave transverter, acquired with the help of YO4AUP, and a superb 300-watt commercially manufactured **Ericsson Compact 9000+ power amplifier**.

These are top-quality pieces of equipment that hardly need any introduction.

The antenna systems are controlled from a PC using the moon-tracking software developed by Codruț, YO3DMU.

It's an excellent program that works extremely well.

The systems can operate independently, which is a tremendous advantage.

1296 MHz station

A portable system mounted on a two-meter-high tripod, consisting of:

- Four horizontally polarized, horizontally phased 35-element F9FT Yagis;
- SSB Electronics LNA;
- IOJXX 300-watt power amplifier.

This system is still under development, as we have not yet managed to bring the SWR down to an acceptable level.

2.4 GHz station

Also under construction is our 2.4 GHz system, for which we already have a transverter and a commercially manufactured 25-element log-periodic antenna.

YO3CCC: I understand you've also been experimenting with 10 GHz.

YO4FNG: I've already written about my 10 GHz adventures in an article available here: [10 GHz article on Radioamator.ro](#) . Since publishing that article, I've modified the transverter several more times. I added an externally controlled, temperature-stabilized VXO and a one-watt output stage. So far, I've completed two QSOs on 10 GHz: one with YO8CLN and another with Ned, LZ1ZX, one of the outstanding operators on the 3 cm band. Ned uses a five-meter parabolic dish with full azimuth/elevation control and a 20-watt power amplifier. Unfortunately, I still haven't managed to work Ukraine on 10 GHz. We're waiting for favorable conditions. Whenever the propagation has been good, either he or I have been unavailable, so we're still waiting! I've also attempted direct 10 GHz contacts with Hungary from Constanța on two occasions. We had what appeared to be ideal rain-scatter conditions between our locations, but unfortunately, those attempts were unsuccessful as well.

YO3CCC: What are your plans for the future?

YO4FNG: A more capable station, larger antennas, and more power! With that objective in mind, I purchased a **2,000-square-meter property**, including an old house, in the village of Potârnichea, Topraisar commune, in the countryside near Constanța. Construction and renovation work is currently underway. I hope to install a new antenna system soon, replacing the previous array of four nine-element DK7ZB Yagis. I also intend to replace the GS-35B power amplifier with a new amplifier using a **GU-78B tube**.

YO3CCC: A few final words, please.

YO4FNG: I'm active on all amateur bands above 30 MHz and hold leading positions in the **YO DX Club** rankings across the various amateur radio bands. I'm currently working on a **24 GHz transverter**, which I hope to complete in the near future.